



ONKY -00674

*Artistry in Sound*  
**ONKYO®**

# ***TX-860/840***

**Quartz Synthesized Tuner Amplifier**

**Quarz-Synthesizer-Empfänger-Verstärker**

**Ampli-tuner à synthétiseur à quartz**

**Sintonizador de cuarzo amplificador**

**Quartz-Synthesizer-Tuner-Versterker**

**Quartz syntestuner/förstärkare**

**Amplificatore sintonizzatore/sintetizzato al quarzo**

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- *Congratulations on your purchase of the ONKYO TX-860, TX-840 Tuner-Amplifier.*
- *Please read this manual thoroughly before making connections and turning power on.*
- *Following the instructions in this manual will enable you to obtain optimum performance and listening enjoyment from your new TX-860, TX-840.*
- *Please retain this manual for future reference.*

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## Features

- **Plenty of Clean Power**  
**TX-860:** 70 watts of rated power per channel into 8 ohms with no more than 0.04% total harmonic distortion.  
 (2 x 165 watts dynamic power at 2 ohms)  
**TX-840:** 60 watts of rated power per channel into 8 ohms with no more than 0.08% total harmonic distortion.  
 (2 x 155 watts dynamic power at 2 ohms)  
 These tuner amplifiers are designed to consistently deliver their full rated power even into low impedance loads.
- **Discrete Output Stage**  
 Instead of IC power amp circuitry, the TX-860 and TX-840 both employ a discrete output stage for effortless drive into low impedance loads. Low distortion linear switching and the high quality parts used throughout are proof of Onkyo's dedication to audio excellence not merely in its high end amps but across the board.
- **"CD Direct" Switch**  
 This switch lets the user bypass the tone and balance controls in the amplifier when listening to CD (or other digital audio sources). Since noise levels in digital audio are extremely low, sending and switching the audio signal through tone and balance circuitry is often unnecessary and may even adversely alter the high quality digital signal.
- **APR (Automatic Precision Reception) System**  
 Onkyo's exclusive APR precision reception system lets every FM broadcast sound its best. Intelligent circuitry monitors the signal and selects the optimum settings for three reception modes on the TX-840: stereo/mono, hi-blend on/off and local/DX mode. On the TX-860 the system controls the noise reduction on/off mode as well. The APR system settings are shown by indicators on the front panel.
- **System Remote Control Possible with Onkyo Components bearing the RI mark**
- **20-Station FM/AM Random Memory with Battery Free Backup**
- **Full Logic Selector Keys for Seven Input Sources Including Video Input and Dubbing Capabilities**
- **Dynamic Bass Expander and Stereo Image Expander (TX-860)**
- **Selective Tone Control/Loudness Control**
- **Sleep Timer (Max. 90 minutes; operable via remote control)**
- **Simulated Stereo**
- **Remote Controlled Motor Driven Volume Control**

## Important safeguards

### "WARNING"

"TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE."

### CAUTION

"TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL."

- For models having power cord with a polarized plug.  
**CAUTION:** TO PREVENT ELECTRIC SHOCK DO NOT USE THIS (POLARIZED) PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

### FOR POWER CORDS WITHOUT PLUGS

- Replacement and mounting of an AC plug on the power supply cord of this unit should be performed only by qualified service personnel.
- **IMPORTANT:** The wires in the mains lead are coloured in accordance with the following code:  
 Blue: Neutral  
 Brown: Live

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:  
 The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black.  
 The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.

Observe the following precautions to obtain troublefree performance for many years.

1. Avoid places subject to direct sunlight or extremely high or low temperatures.
  2. Avoid damp or dusty places and places directly affected by vibrations from the speakers. In particular, avoid placing the unit on or above one of the speakers.
  3. Avoid unstable locations and high places from which the unit could fall.
  4. Ventilation — The unit should be situated so that its location or position does not interfere with proper ventilation. For example, the unit should not be placed on a bed, sofa, rug or similar surface that could block the ventilation openings or placed in a built-in installation, such as a bookcase or cabinet, that could impede the flow of air through the ventilation openings.
  5. Heat — The unit should be situated away from heat sources such as radiators, heat registers, or other appliances (including amplifiers) that produce heat.
  6. Cleaning of the internal parts should be performed only by qualified service personnel.
  7. Spillage — Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through the openings.
  8. Damage Requiring Service — The unit should be serviced by qualified service personnel when:
    - A. The power supply cord or the plug has been damaged; or
    - B. Objects have fallen or liquid has been spilled into the unit; or
    - C. The unit has been exposed to rain; or
    - D. The unit does not appear to operate normally or exhibits a marked change in performance; or
    - E. The unit has been dropped or the enclosure damaged.
  9. Servicing — The user should not attempt to service the unit beyond that described in the operating instructions. All other servicing should be referred to qualified service personnel.
- This apparatus complies with requirements of EEC directive 82/499/EEC.

## Precautions

### 1. Warranty Card

The serial number is written on the rear panel of this unit. Copy the serial number and model number onto your warranty card and keep it in a safe place.

### 2. Recording Copyright

Recording of copyrighted material for other than personal use is illegal without permission of the copyright holder.

### 3. AC Fuse

The fuse is located inside the chassis and is not user serviceable. If power does not come on, contact your Onkyo service center.

### 4. Care

From time to time you should wipe off the front and rear panels and the cabinet with a soft cloth. For heavier dirt, dampen a soft cloth in a weak solution of mild detergent and water or a mild ammonia cleaner, wring it out dry, and wipe off the dirt. Following this, dry immediately with a clean cloth. Do not use rough material, thinners, alcohol or other chemical solvents or cloths since these could damage the finish or remove the panel lettering.

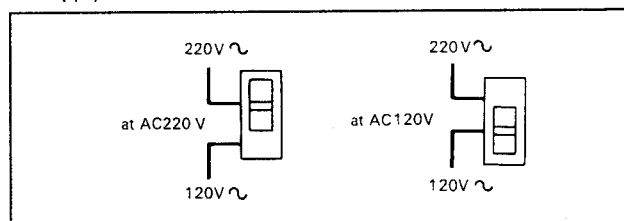
### 5. Power

#### WARNING

BEFORE TURNING ON POWER FOR THE FIRST TIME, READ THE FOLLOWING SECTION CAREFULLY.

- Some models are designed for use only with the power supply voltage of the region where they are sold.
 

European models:	AC 220V, 50Hz
British & Australian models:	AC 240V, 50Hz
Worldwide models:	AC 120V and 220V switchable, 50/60Hz
- **Voltage Selector (Rear Panel)**  
Worldwide models are equipped with a voltage selector to conform with local power supplies. Be sure to set this switch to match the voltage of the power supply in your area before turning the power switch on. Voltage is changed by sliding the groove in the switch with a screwdriver to the up or down. Confirm that the switch has been moved all the way to the up or down before turning the power switch on. Models without a voltage selector can only be used in areas where the power supply is the same as that of the unit.



### • Tuning Step Frequency Switch (Bottom)

Worldwide models are equipped with a switch that controls the AM (9kHz/10kHz) and FM (50kHz/200kHz) band tuning steps. Be sure to set this switch to match the tuning step frequency in your area.

U.S.A.	10kHz/200kHz
Other area	9kHz/50kHz

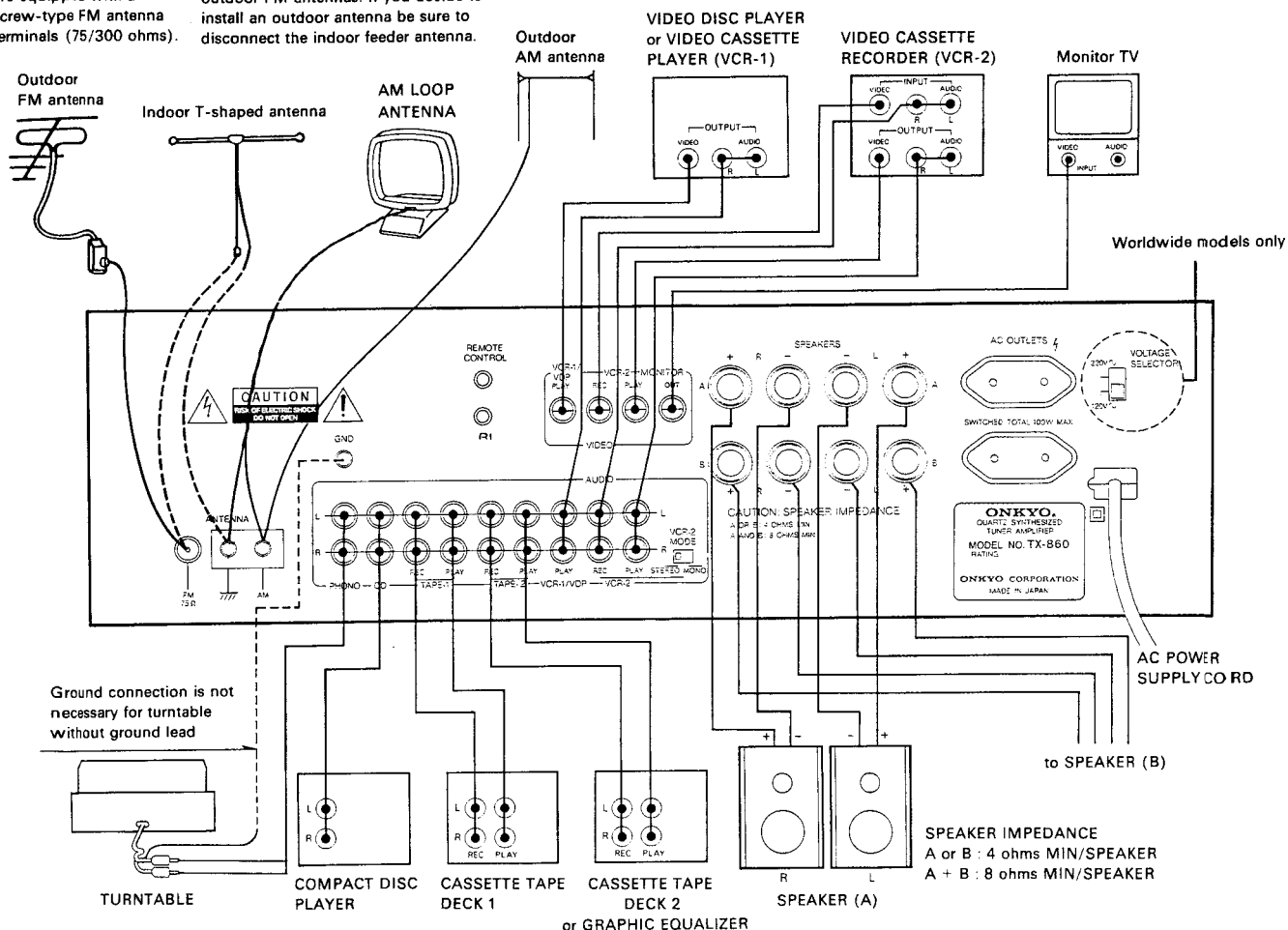
## System connections

### General

Switch the main power switch off before performing connections.  
Also be sure to perform left and right channel connections properly.

Models for some areas are equipped with a screw-type FM antenna terminals (75/300 ohms).

Do not connect both indoor and outdoor FM antennas. If you decide to install an outdoor antenna be sure to disconnect the indoor feeder antenna.



### AC Outlets

#### • SWITCHED:

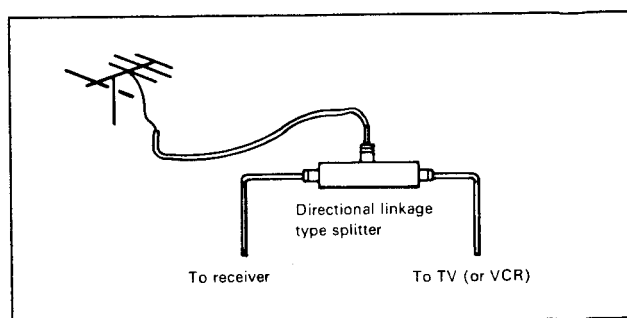
These outlets are switched on and off by the Power switch on the front panel and remote control transmitter. Capacity is total 100 watts. (Not included on British and Australian models)

### FM Antenna Connections

Use the T-shaped antenna if you live in an area where signal strength of FM broadcasts is high. Connect the antenna to the FM 75 ohms terminals and place the antenna on a wall or other surface in the position in which reception is best. If signal strength is low in your area, use a multi-element FM outdoor antenna. Consult your Onkyo authorized service center about the right type of antenna for your area.

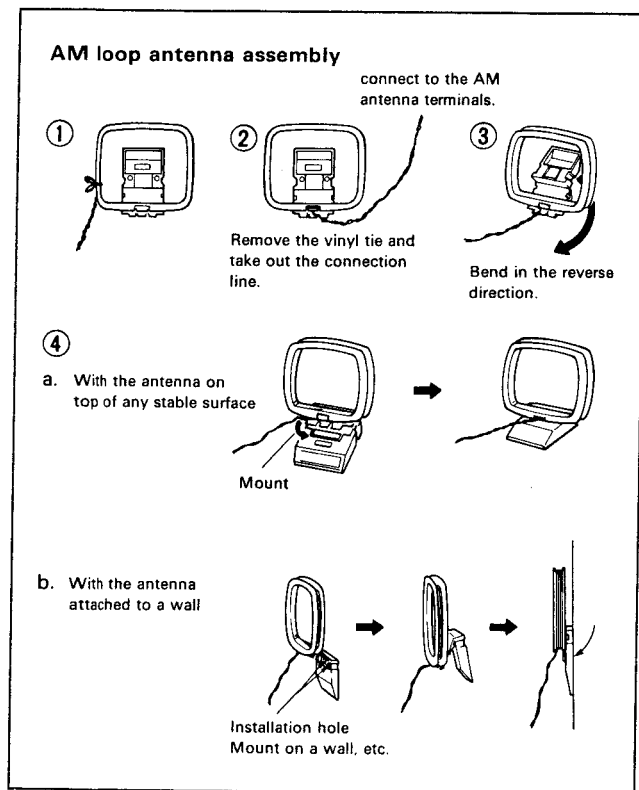
### NOTES:

1. Do not connect both the indoor T-shaped antenna and an outdoor FM antenna. If you decide to install an outdoor antenna, be sure to disconnect the indoor T-shaped antenna.
2. Do not use the same antenna for both FM and TV reception since the FM and TV signals can interfere with each other. If you must use a common FM/TV antenna, use a directional linkage type splitter.



### AM Antenna Connections

An AM loop antenna is included in the installation instructions bag. Take out the connection line and connect it to the AM antenna terminals. This loop antenna can be placed on top of any stable surface or attached to a wall. Try several positions to determine which gives the best reception. Be sure the antenna is not near a speaker, power cord, television set, VCR, or motorized appliances. When using an external AM antenna, do not remove the loop antenna; connect both antennas to the AM antenna terminals.



#### NOTE:

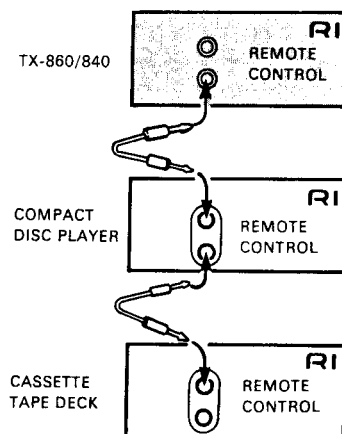
AM reception is easily affected by television sets and VCRs. Therefore, AM reception may be poor if this unit is placed too close to a TV or a VCR.

### Speaker Connections (SPEAKERS)

1. Connect the speakers to A and/or B terminals.
  2. When connecting speakers, proper polarity is important. Always connect the (+) terminal (red) on this equipment to the (+) terminal on the speaker and the (-) terminal (black) on this equipment to the (-) terminal on the speaker.
  3. Do not connect a single speaker in parallel to the right and left channel outputs.
  4. Use speaker cables that have a low impedance and that are as short as possible.
- Attach speaker cables to the rear panel speaker terminals with care, being sure that connections are made firmly and that there is no possibility of a short circuit occurring.

### Connections for Remote Control (REMOTE CONTROL)

A cassette tape deck and compact disc player that have the Onkyo **RI** mark can be operated, using the accessory remote control transmitter. ( **RI** : Remote Interactive)



An **RI** remote control cable equipped with a 0.136" (3.5mm) diameter miniature two-conductor phone plug is attached to the TX-860/840 and to any compact disc player, with the **RI** mark.

To use an Onkyo compact disc player and cassette tape deck with the **RI** mark, insert the accessory remote control cable plug into the REMOTE CONTROL jacks. As far as connecting sequence is concerned, it doesn't matter whether the cable is connected from the TX-860/840 to the cassette tape deck or to the compact disc player. The remote control transmitter is operated by facing it towards the remote control sensor of the TX-860/840.

#### NOTE:

Remote control operation is not possible when only the remote control cable is connected. Remote control cable and pin cord must be connected.

### Turntable Connections (PHONO)

Connect the output leads of the turntable to the PHONO jacks. Be sure to connect the ground (earth) lead wire from the turntable to the ground terminal (GND). Lack of proper ground connection will cause hum. Turntables not provided with GND wires do not need to be connected.

1. Place the turntable on a firm shelf or deck free from vibrations (especially those generated by the speaker system). If the turntable is permitted to pick up such unwanted vibrations, not only will the performance of the unit drop, but distortion in the bass frequencies and howling in the speakers may also occur.
2. Check the turntable instruction manual for any other precautions.
3. The loud noises that occur when connecting and disconnecting the turntable leads, replacing the cartridge or lowering the tonearm could damage the speakers. Always turn the power switch off before making connections.

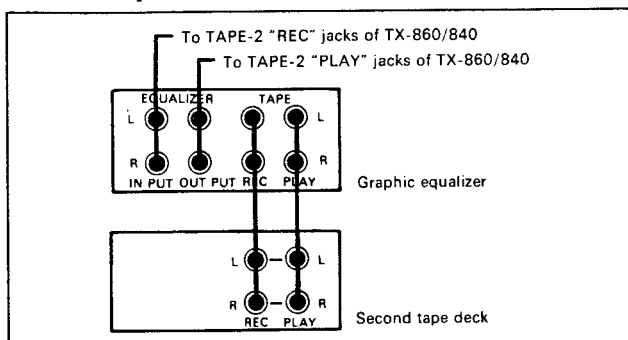
### Compact Disc Player or Other Component Connections (CD)

Connect the output leads of the CD player or an additional audio component to the CD jacks. An Onkyo CD player with remote control that has the **RI** mark can be operated by the TX-860/840. (Please refer to "Connections for Remote Control" on page 4.) For more details, refer to your CD player instruction manual.

### Tape Deck and Graphic Equalizer Connections (TAPE-1, TAPE-2)

1. This unit has facilities for two tape decks. If you are using only one tape deck, connect it to the TAPE-1 jacks. If you have two tape decks, connect one to the TAPE-1 jacks and the other to the TAPE-2 jacks.
2. Connect the output leads of the tape decks to the TAPE-1 and TAPE-2 "PLAY" jacks. Connect the input leads of the tape decks to the TAPE-1 and TAPE-2 "REC" jacks of the unit. For more details, refer to your tape deck instruction manual.
3. To connect a graphic equalizer, too, use the TAPE-2 jacks and connect the second tape deck to the tape jacks of the equalizer.

To connect a graphic equalizer and second tape deck to the TAPE-2 jacks.



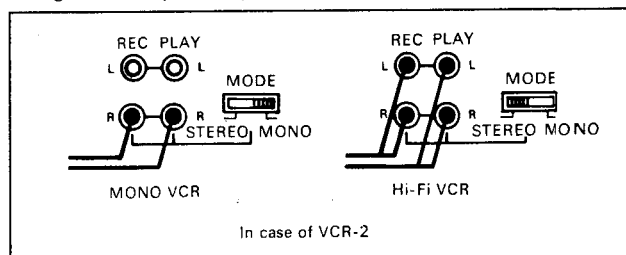
4. If you have an Onkyo tape deck with **RI** the remote control jack, connect it to the TAPE-1 jacks. Please refer to the section "Connections for Remote Control" (page 4) regarding connection of the remote control cable.

### Video Disc Player (or Video Cassette Player) Connections (VCR-1/VDP)

Connect the VIDEO output of the video disc player to the TX-860/840 (VIDEO) VCR-1/VDP "PLAY" jack and the AUDIO output to the (AUDIO) VCR-1/VDP "PLAY" jack. The VCR-1/VDP jack is only for playback, there is no REC jack. If the audio output from the video unit is monaural, connect to VCR-2. For more details, refer to the video disc player instruction manual.

### Video Cassette Recorder Connections (VCR-2)

1. Connect the VIDEO output of the VCR to the rear panel (VIDEO) VCR-2 "PLAY" jack and the VIDEO input of the VCR to the rear panel (VIDEO) VCR-2 "REC" jack. Then connect the AUDIO output of the VCR to the (AUDIO) VCR-2 L and R "PLAY" jacks. Finally, connect the AUDIO input of the VCR to the (AUDIO) VCR-2 L and R "REC" jacks.
2. When using a monaural VCR (having a single audio input and output), set the VCR-2 "MODE" switch on the rear panel to "MONO" and use either the R or L audio jacks. If the switch is in the "STEREO" position, sound will be heard from only the right or left speaker system.

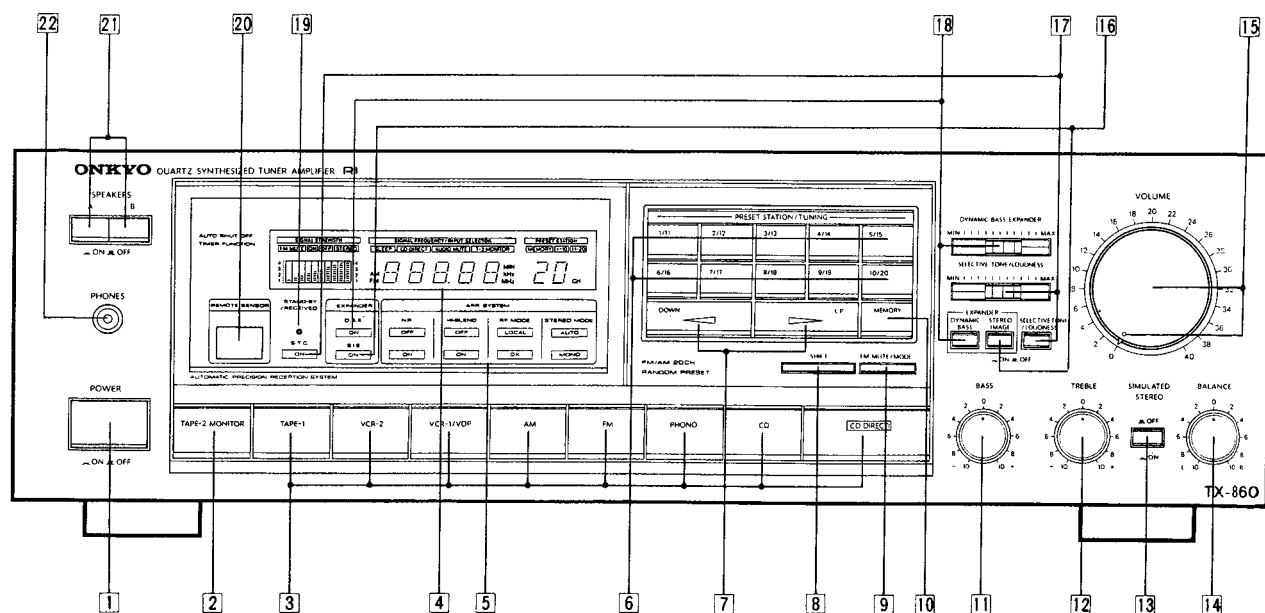


3. When using a playback-only VCR, only the output connections need to be performed.
4. For more details, refer to the VCR instruction manual.

### TV Connections (MONITOR)

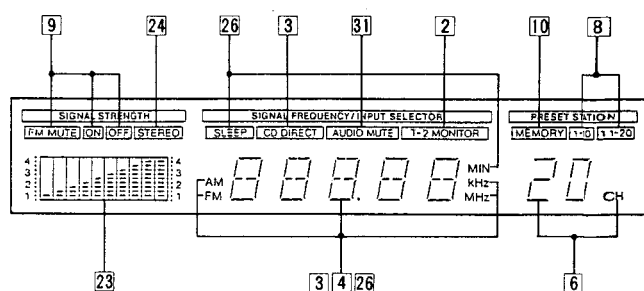
1. Connect the TV VIDEO input to the TX-860/840 MONITOR "OUT" jack. There is no need to perform an audio connection since sound will be sent directly from the TX-860/840 to the speaker systems.
2. The TX-860/840 does not have an RF converter. Therefore, it can be used with only a monitor TV equipped with a video input jack.
3. Since the television set, tuner (FM/AM) section of this unit can cause interference that may disrupt sound and/or picture quality, the TV and TX-860/840 and their respective connection cables should be placed as far apart as possible. The use of a common TV/FM antenna is not recommended (see antenna section).

## Front panel facilities

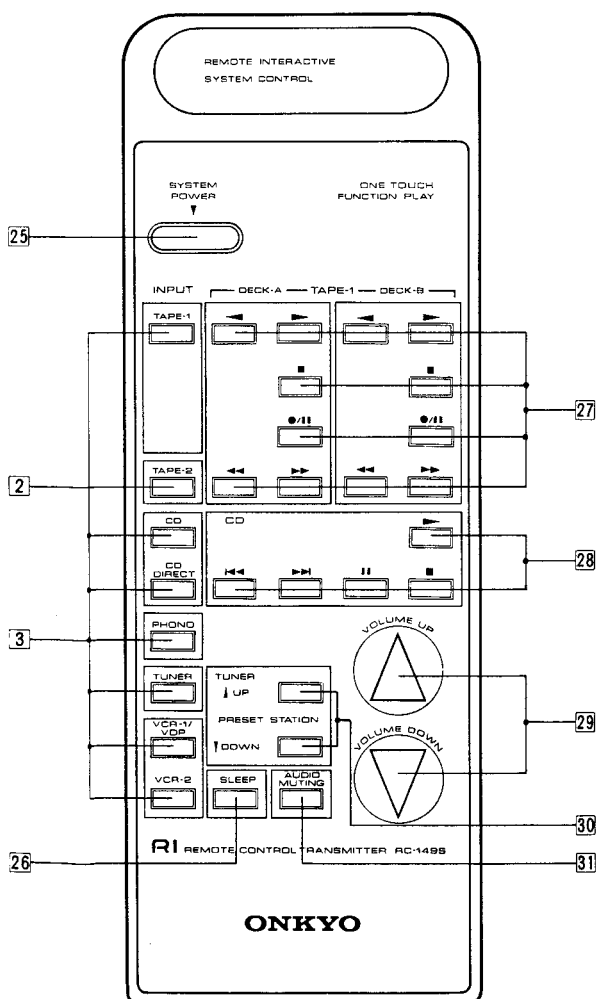


### NOTE:

- The features, specifications, and display for the TX-860 and TX-840 are slightly different. Read this manual carefully to operate the model you have purchased correctly.



Multiple Function Display



### 1 Power Switch (POWER)

Press once to turn power on and once again to turn power off. When power is turned on, the volume indicator **15** lights and the TX-860/840 will turn on. If this power switch **1** is not ON, remote control operation is not possible. If you use the remote control transmitter to turn the power off while this switch is ON, the stand-by/received indicator **19** will light.

- 2 Tape Monitor Button (TAPE-2 MONITOR) and Indicator**  
Press this button to use the tape deck connected to the TAPE-2 PLAY/REC jacks for recording, playback or dubbing. The **T-2 MONITOR** on the display lights up. Note that dubbing can only be performed from tape deck 1 to tape deck 2. If a tape deck 2 is a 3-head model, the just-recorded signal can be monitored as a recording is being made. The button is also enabled by the key on the remote control transmitter.

### 3 Input Selector Buttons and Indicators

The button pressed is shown in Display **4**. For FM or AM, the band and the frequency are shown.

#### • Audio Selectors

- TAPE-1: Press to listen to the TAPE-1  
AM: Press to listen to an AM broadcast  
FM: Press to listen to an FM broadcast  
PHONO: Press to listen to the turntable  
CD/CD DIRECT: Press to listen to the CD player

When you select CD DIRECT, you can obtain a "Pure" sound reproduction, bypassing the Selective Tone/Loudness Control, Simulated Stereo, Bass, Treble and Balance Controls, Dynamic Bass Expander (TX-860 only) and Stereo Image Expander (TX-860 only), and using only the Volume control. The **CD DIRECT** on the display lights up.

**NOTE:**

In the CD DIRECT position, recording with the tape deck is not possible.

- **Video Selectors (Controls audio and video signals)**

VCR-1/VDP: Press to obtain the video and audio signals from a VCR-1 or a VDP.

VCR-2: Press to obtain the video and audio signals from a VCR-2.

The button is also enabled by the key on the remote control transmitter.

**4 Display**

This section shows the input selected and for FM or AM, the band and the frequency. When the sleep timer is set with the remote control transmitter, this section shows the number of minutes left on the sleep timer.

**5 APR Indicators**

**Automatic Precision Reception System (FM Mode)**

APR system is Onkyo's unique computer-controlled system. APR system automatically sets the RF stage gain (Distance/Local), the NR function (OFF/ON) (TX-860 only) for reducing noise in weak signals, the HI-BLEND function (OFF/ON) for reducing noise in weak stereo signals, and the auto stereo/mono reception modes to the proper settings for the quality of the broadcast currently being received. This indicator changes each time the APR circuit switches between the LOCAL/DX, NR OFF/ON, HI-BLEND OFF/ON or AUTO/MONO to show the current APR setting. (APR system is effective for only FM reception.)

**NOTE:**

- When FM Muting/Mode button [9] is OFF (MONO), the APR Mode selection function does not operate, and the Stereo/Mode indicator is forced to "MONO".
- The "MONO" display lights up for FM monaural reception.
- The NR indicator is only on the TX-860.
- The RF MODE will indicate LOCAL when sufficient signal is received.

**6 FM/AM Preset Buttons (PRESET STATION) and Display**

Use these buttons to recall an FM or AM station or to store a station in the memory. When a button is pressed, the corresponding preset number is displayed in digital form. Refer to the Memory section for details.

**7 Turning Selector Buttons (◀ DOWN, UP ▶)**

DOWN: Press to tune in a lower frequency.

UP: Press to tune in a higher frequency.

When listening to a broadcast, pressing the UP button will increase the FM or AM reception frequency. Pressing the DOWN button decreases the frequencies (Manual Tuning). If the button is pressed for longer than 0.5 seconds in AM or FM, and then released, broadcast frequencies will change automatically until a station is tuned in (Auto Tuning).

When either the upper or the lower end of the frequency range is reached, the displayed frequency will automatically switch back to the other end of the range and continue to either increase or decrease as before. For example, when the DOWN tuning selector is pressed, the frequency will decrease until the lowest frequency is reached. The displayed frequency will then switch back to the highest frequency and continue decreasing as before.

Scanning will not stop for broadcasts weak enough to be suppressed by the muting circuit. To receive a weak FM broadcast, set the FM Muting/Mode button [9] to the OFF (MONO) and tune in the FM broadcast. In this case, even stereo broadcasts will be heard in mono.

**8 Shift Button (SHIFT) and Indicators**

The FM/AM Preset buttons [6] can be used to store a total of 20 radio stations. Use this button to switch the Preset buttons between the memory channel 1-10 mode and the memory channel 11-20 mode. The setting switches between 1-10 and 11-20 each time this button is pressed and the respective in-

icator lights. When power is turned on, the setting is the same as when power was last turned off.

**9 FM Muting/Mode Button (FM MUTE/MODE) and Indicator**

In the Muting ON (STEREO) setting, FM stereo reception is possible and the muting circuit suppresses interstation noise and weak FM stations. In the OFF (MONO) setting, interstation noise will be heard and even weak FM stations can be received. (Muting/Mode operation is effective for only FM reception.)

**10 Memory Button (MEMORY) and Indicator**

Press this button to place a station in the memory using the FM/AM Preset buttons [6]. When this button is pressed, the indicator lights for about 8 seconds. While the indicator is lit, press one of the FM/AM Preset buttons [6]. Upon press, the displayed frequency will be stored in memory. The pressed preset number will be displayed in digital form, and the memory indicator will go out to indicate that memory operation has been completed.

**11 Bass Control Knob (BASS)**

Adjust to strengthen or weaken bass response.

**12 Treble Control Knob (TREBLE)**

Adjust to strengthen or weaken treble response.

**13 Simulated Stereo Switch (SIMULATED STEREO)**

Set this switch to the on position to add a stereo-like effect to monaural sources (TV programs, mono VCR recording, AM radio, etc.).

**14 Balance Control Knob (BALANCE)**

Use this control to adjust the relative volume levels of the left and right speaker systems.

**15 Volume Control Knob and Indicator (VOLUME)**

Turn clockwise to increase the volume level. The volume can be adjusted manually and by the remote control transmitter's Volume UP/DOWN key [29]. When adjusted by remote control, the volume knob rotates along with the volume indicator on the knob. This allows you to see the volume level from a distance.

**16 Stereo Image Expander Switch and Indicator S.I.E (STEREO IMAGE EXPANDER) (TX-860 only)**

Set this switch to the on position to add an extra feeling of width and depth to stereo sound.

**17 Selective Tone/Loudness Control Switch and Level Control Knob and Indicator S.T.C (SELECTIVE TONE/LOUDNESS) (TX-860)**

Set this switch to the on position, creating a clear reproduction quality of the ultra low frequencies and high frequencies. Boosting of a selective tone can be controlled via the level control.

**Selective Tone/Loudness Control Knob (SELECTIVE TONE/LOUDNESS) (TX-840)**

Set this knob to the right position, creating a clear reproduction quality of the ultra low frequencies and high frequencies. Boosting of a selective tone can be controlled via the level control. Sliding this knob all the way to the left eliminates this effect.

**18 Dynamic Bass Expander Switch and Level Control Knob and Indicator**

**D.B.E. (DYNAMIC BASS EXPANDER) (TX-860 only)**

Set this switch to the on position to add an extra feeling of power and realism to the low range. Its function is unlike that of the conventional bass control. Adjust level control to raise and lower the amount of the dynamic bass expander effect.

**19 Stand-By/Received Indicator**

When this indicator is lit, the power can be turned on by the remote control transmitter. If the power switch [1] of the main unit is off, this indicator will not light even if the remote control transmitter key is pressed. This indicator also flashes when the signal is received from the remote control transmitter.

**20 Remote Control Sensor (REMOTE SENSOR)**

This sensor receives the remote control signals.



**21 Speaker Selector Switches (SPEAKERS)**

This unit can drive two pairs of speakers in pairs (A or B) or fours (A + B). To listen to both Speaker Systems at once, depress both Speaker Selector switches.

**22 Headphones Jack (PHONES)**

Stereo headphones with a standard binaural plug can be connected here.

**23 Signal Strength Indicator**

The optimum tuning point is achieved when the most indicators are lit.

**24 Stereo Indicator (STEREO)**

This indicator lights when an FM stereo broadcast is being received. It does not light when the FM MUTE/Mode button [9] is in the OFF (MONO) position or when a weak FM stereo broadcast is being received.

## • Remote Control Transmitter Controls

**25 Power Key (SYSTEM POWER)**

When the TX-860/840's stand-by/received indicator [19] is lit, pressing this key will turn on the TX-860/840 (the stand-by/received indicator will go out). Pressing the key again will turn off the TX-860/840 (the stand-by/received indicator will light). The remote control transmitter also has a switch that turns power on and off to the AC outlets on the rear panel of the TX-860/840. (AC outlets are not supplied for some areas.)

**26 Sleep key and Indicators**

Press to set the power off timer. The sleep timer is a function which turns off the power to the system from the time it is set. When this key is pressed, "90 MIN" is displayed on the tuner's display for 5 seconds, and the power goes off 90 minutes later. Each time the key is pressed during 5 seconds, the timer setting changes, 60, and 30 minutes, in turn. While the sleep timer is operating, the [SLEEP] indicator is lighted. If the sleep key is pressed during this time, the amount of time remaining on the sleep timer is displayed, and if the key is pressed during that display, 30 minutes will be subtracted from that time. If the key is pressed when the panel display shows 30 minutes or less, the sleep timer is cancelled, and the power is not turned off.

**27 Tape Operation Keys (DECK-A, DECK-B)**

These keys control Onkyo double cassette tape decks that can be remote controlled. Use the DECK-B keys to control single cassette tape decks with the **RI** mark.

●/■ : When this is pressed, the recording stand-by mode is entered.

◀ : The tape plays, moving from right to left, or, in the recording stand-by mode, recording begins.

■ : Interrupts all operations.

▶ : The tape plays, moving from left to right, or, in the recording stand-by mode, recording begins.

◀◀ : Fast forward from right to left.

▶▶ : Fast forward from left to right.

For connections, please refer to the section "Connections for Remote Control."

Consult your Onkyo service center for further details.

**28 CD Operation Keys (CD)**

These keys are used to operate an ONKYO CD player with the **RI** mark.

▶ : Press this key to play the CD player.

⏸ : Press this key to pause the CD playback. To resume disc play, press the PLAY key.

■ : Press this key to stop the CD player.

◀◀ : Press this key to go back to the beginning of the current track and again to skip back to the previous track.

▶▶ : Press this key to skip to the next track.

Refer to the CD player instruction manual for additional information.

For connections, please see the section on "Connections for Remote Control."

Consult your Onkyo service center for further details.

**29 Volume Keys (▲ UP, ▼ DOWN)**

This key has the same function as that of the volume control [15]. The volume level can be adjusted by pressing the UP or DOWN key, with the volume control knob rotating simultaneously.

**30 Tuner Operation Keys (◀ PRESET ▶)**

When the UP (▶) or DOWN (◀) remote this key is pressed, the next higher or lower memory channel is recalled. Each time UP or DOWN key is pressed, the following memory channel in the corresponding direction is recalled. If the key is held down the memory channel will increase or decrease continuously until key is released.

**31 Audio Muting Key (AUDIO MUTING) and Indicator**

This key temporarily switches off the sound from the speaker or headphone. Pressing this key will operate the TX-860/840's audio muting circuit. The audio muting indicator [AUDIO MUTE] will light. Pressing the key again will turn off the audio muting.

## Operations

### Tuner Reception

1. Confirm that the [T-2 MONITOR] indicator [2] is off, audio muting is off, and press the FM or AM Input Selector button [3].
2. To tune in an FM or AM station not stored in the memory, press one of the Tuning selector buttons [7]. If you press UP, the frequency is increased. Pressing DOWN decreases. Note that the frequency is changed in 50kHz (or 200kHz) steps in FM and 9kHz (or 10kHz) steps in AM when the Tuning selector button is pressed in single steps. If this button is pressed continuously for more than 0.5 seconds, the auto tuning mode is entered, and frequencies are scanned automatically. When a broadcast signal is received, scanning stops and that frequency is displayed. If a different frequency is desired, press the button once again.
3. Scanning will not stop for broadcasts weak enough to be suppressed by the muting circuit. To receive a weak FM broadcast, set the FM Muting/Mode button [9] to the OFF position and select the frequency of the desired broadcast station.
3. To recall a station stored in the memory, simply press the Preset station button corresponding to the desired station. Be sure to set the Shift button [8] to the range (1-10 or 11-20) for the memory channel to be recalled. This is a random FM/AM memory. If a preset station button is pressed when the input selector is not set to FM or AM, the input is automatically switched to FM or AM.
4. The Stereo indicator [24] will light up if the broadcast is being received in stereo. The Stereo indicator will not light up if the broadcast is monaural or too weak to be received in Stereo.

### Memory Function

This unit can store a total of 20 FM and AM stations in the memory for instant recall at any time without using the Tuning selector buttons. The 20 stations can be any combination of FM and AM broadcasts. Read the following directions carefully to avoid mistaken operations.

1. Select the FM or AM to be placed in the memory using the Input Selector button [3]. Confirm the [T-2 MONITOR] indicator [2] is off and Audio muting is off.
2. Use the shift button to set the 1-10 or 11-20 range, depending on which memory channel is to be used.
3. Tune in the broadcast to be placed in the memory using the Tuning selector buttons.
4. Press the Memory button and, while the Memory indicator remains lit (about 8 seconds), press one of the FM/AM Preset buttons.
5. When the Preset button is pressed, the Memory indicator will go out and the pressed preset number will come on. The frequency currently shown in the frequency display is now stored in the memory.
6. If the Memory indicator goes out before you have pressed one of the Preset buttons, simply press the Memory button [10] again to give yourself another 8 seconds.
7. Placing another broadcast in the same memory channel automatically cancels the station previously stored in that channel.

### NOTES:

Preset frequencies can be transferred to other channels. For example, the FM station stored on Preset button number 6 can be transferred to Preset button number 1 in the following manner:

- 1) Press Preset button number 6.
- 2) Press the Memory button [10] (Memory indicator lights).
- 3) Press Preset button number 1.
- 4) The same station is now stored on both Preset buttons 1 and 6.

### Memory Preservation

This unit does not require memory preservation batteries. A built-in memory power back-up system preserves the contents of the memory during power failures and even when the unit is unplugged. The unit must be plugged in and the power switch turned on and off once in order to charge the back-up system. Note that since this is not a permanent memory, the power switch must be turned on and off a few times each month to keep the back-up system operative.

The memory preservation period after power has been turned off varies depending on climate and placement of the unit. On the average, memory contents are protected over a period of a few weeks after the last time power has been turned off. This period is shorter when the unit is exposed to a highly humid climate.

### Using the Phonograph Record

1. Press the Input Selector button [3] to PHONO, and confirm that the [T-2 MONITOR] indicator is off and audio muting is off.
2. Follow the turntable operating instructions.

### NOTE:

Confirm that the turntable is connected to the PHONO input jacks on the rear panel.

### Using the Compact Disc Player

1. Press the CD or CD DIRECT Input Selector button [3], and confirm that the [T-2 MONITOR] indicator [2] is off and audio muting is off.
2. Follow the operating instructions for the CD player.
- With the Input Selector button [3] set to "CD", the Bass Control, Treble Control, Balance Control, Selective Tone/Loudness Control, Simulated Stereo, Dynamic Bass Expander (only TX-860), Stereo Image Expander (only TX-860) can be freely adjusted for the CD playback sound. When the Input Selector button [3] set to "CD DIRECT," these controls will have no effect. Instead, a purer CD sound will be produced.

### NOTE:

Confirm that the CD player is connected to the CD input jacks on the rear panel.

### Tape Playback

1. Press the TAPE-1 Input Selector button [3] or TAPE-2 MONITOR button [2] depending on which pair of TAPE PLAY jacks the deck is connected to.
2. For playback, follow the operating instructions of the tape deck.

### NOTE:

Confirm that the output leads from the tape deck to the TAPE-1 and/or TAPE-2 jacks on the rear panel.

### Tape Recording

1. Make all connections between the tape deck and the unit as shown in the System Connections Diagram.
2. Radio: Press the FM or AM Input Selector button [3].  
Record: Press the PHONO Input Selector button [3].  
CD: Press the CD Input Selector button [3].  
VCR-1/VDP: Press the VCR-1/VDP Input Selector button [3].  
VCR-2: Press the VCR-2 Input Selector button [3].
3. Put the tape deck in the recording mode. The recording can be monitored through the speakers or headphones as desired. For TAPE-2, turn on the corresponding Tape Monitor button to hear the signal that, having been recorded, is returned from the deck to the TX-860/840. (if the deck has three heads).
4. Set the proper recording level using the controls on the tape deck used for recording. Also, during recording and dubbing operations, never change the positions of any controls (bass, treble, etc.) on this unit.

### Tape-to-Tape Dubbing

1. Connect the two tape decks to this unit as shown in the System Connections diagram.
2. Load the original tape in tape deck 1 and the blank tape in tape deck 2.
3. Press the TAPE-1 Input Selector button [3].
4. Put tape deck 1 in the playback mode and tape deck 2 in the recording mode.
5. The source signal can be monitored through the speakers or headphones, when the TAPE-2 MONITOR button [2] is in the OFF position. If tape deck 2 has three heads, the just-recorded signal can be monitored (when the TAPE-2 MONITOR button [2] is in the ON position). Refer to the tape deck instruction manuals for more details.

### Using the Graphic Equalizer

1. Connect the graphic equalizer to the TAPE-2 jacks on the rear panel.
2. If a second tape deck is used, connect it to the tape jacks on the graphic equalizer.
3. Press the TAPE-2 MONITOR button [2].
4. Follow the graphic equalizer operating instructions.
5. To record an equalized signal, use tape deck 2 (connected to the equalizer) for recording.

### Video Disc Player Playback

1. Connect the video disc player to the TX-860/840 as shown in the System connections diagram. Then connect a monitor or TV having a video input jack to the TX-860/840 video "MONITOR OUT" jack.
2. Press the VCR-1/VDP Input Selector button [3].
3. Switch on the monitor TV, and start playback of the video disc player. The picture will be sent to the monitor TV and sound to the speakers connected to the TX-860/840.
4. Refer to the video disc player instruction manual for additional information.

### Video Cassette Recorder (or Player) Playback

1. Connect the VCR to the TX-860/840 as shown in the System Connections diagram. Note that a playback only video unit has no video or audio input jacks. Remember to switch the corresponding VCR mode switch to MONO when using a monaural VCR-2. If this is not done, sound will be heard from only one speaker. If the MONO setting is used with a hi-fi (stereo) VCR, even stereo sound will be heard in the monaural mode. Then connect a monitor or TV having a video input jack to the TX-860/840 video "MONITOR OUT" jack.
2. Press the VCR-2 Input Selector button [3].
3. Switch on the monitor TV, and start playback of the VCR. The picture will be sent to the monitor TV and sound to the speakers connected to the TX-860/840.
4. Refer to the video cassette recorder instruction manual for additional information.

### Video Disc Player to VCR Dubbing

Video disc programs can be recorded onto a VCR-2.

1. Load a disc in the video disc player, and a blank tape in the VCR-2.
2. Press the VCR-1/VDP Input Selector button [3].
3. Begin playback of the video disc player and recording of the VCR-2.
4. The VCR-1/VDP to VCR-2 duplication is possible when a second VCR output are connected to the VCR-1/VDP jacks.
5. Refer to the video disc player and VCR instruction manuals for additional information.

### Direct function feature

#### NOTE:

This function works when an Onkyo cassette tape deck or CD player with the **RI** mark is connected to a TX-860/840 with an **RI** remote control cable.

Just by directly operating the desired component (compact disc player, or tape deck), the TX-860/840's input selector automatically switches to that component. The component that was being used stops, and the desired component starts operation. Therefore, it is not necessary to switch the TX-860/840's input selector when changing listening sources. Another way to switch listening sources is to press the TX-860/840's input selector of the desired listening source. The current listening source will then stop automatically and the desired listening source will start operation.

#### Example 1

When the compact disc player's play button is pressed, the TX-860/840's input selector will switch automatically to "CD." If the current listening source was a tape deck, tape playback will stop and the compact disc player will start playing.

#### Example 2

With a tape deck as the current listening source, if the TX-860/840's input selector is switched to "CD," the tape deck will stop playing and the compact disc player will start playing.

#### Note:

The direct function feature does not apply to turntable.

## Using the Remote Control Transmitter (RC-149S)

### ● Batteries

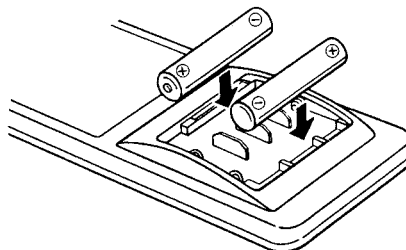
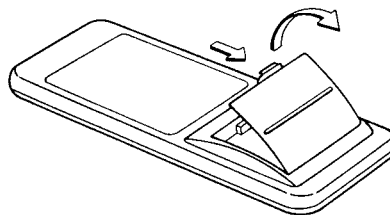
The remote control transmitter is powered by two batteries. Before using this unit for the first time, insert the two batteries (included) as shown in the diagram. The remote control transmitter has no on/off switch. Average battery life is one year. This period may be shorter depending on the frequency of use and environment (temperature and humidity) in which the remote control transmitter is used. If the remote control transmitter does not operate even though front panel controls function normally, the batteries should be replaced. Use only batteries listed in the following chart.

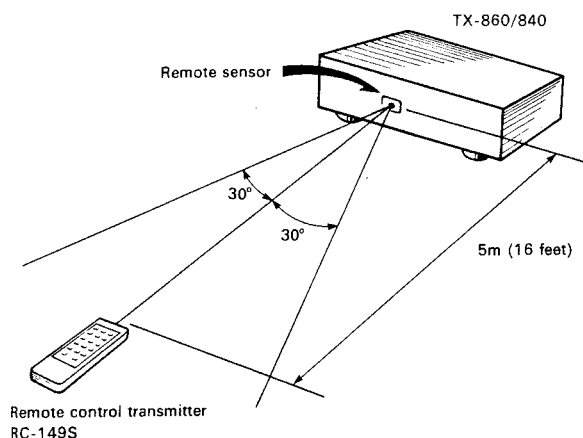
Type	Voltage	Size
Manganese	1.5V	AAA R03 / LR03 UM-4 / AM4

#### NOTE:

1. Do not leave an expired battery in the case as it may leak or damage the battery case.
2. When inserting the batteries, be sure the (+) and (-) ends are properly aligned.
3. Do not use nickel-cadmium (rechargeable) batteries.
4. Do not use one specified (manganese) battery and one alkaline battery at the same time.
5. Replace both batteries at once; do not use one old and one new battery together.

### Transmitter Battery Replacement





● Precautions

1. Remove the batteries if the remote control transmitter is not going to be used for a long time.

## Trouble shooting guide

2. This unit uses infrared rays. Therefore, commands may not be received properly if the front panel of the TX-860/840 is exposed to bright light. To prevent this from occurring, place the TX-860/840 so that it is not directly exposed to a bright light.
3. The batteries of the remote control transmitter must be replaced periodically. Remember, however, that commands will be received only when the power switch of the TX-860/840 is on.
4. The transmitter operates up to a distance of about five meters (16 feet). the transmitting window must always be pointed at the reception window when a command is sent to the receiver.
5. If the TX-860/840 is placed inside an audio rack behind a glass door, the door should not use colored glass or have any decorations on it since this could shorten the range or prevent commands from being received.
6. Use of other infrared remote control devices in the same room may cause interference.
7. If this remote control transmitter does not operate properly, confirm that the batteries are not dead. If the problem persists, contact your Onkyo service center.

**NOTE:**

If a problem occurs, first operate the unit using the front panel controls to confirm that it is not due to a malfunction (or worn out batteries) of the remote control transmitter.

Trouble	Cause	Remedy
No power.	<ul style="list-style-type: none"> <li>● Power cord is disconnected.</li> <li>● AC fuse blown.</li> </ul>	<ul style="list-style-type: none"> <li>● Connect power cord.</li> <li>● Contact Onkyo Service Center.</li> </ul>
Power but no sound.	<ul style="list-style-type: none"> <li>● Tape monitor switch on.</li> <li>● Audio muting switch on.</li> <li>● Bad connections.</li> <li>● Amplifier protection circuitry has been activated.</li> </ul>	<ul style="list-style-type: none"> <li>● Switch to off.</li> <li>● Switch to off by remote control transmitter.</li> <li>● Check input leads, speaker leads, pin plugs, etc.</li> <li>● Contact Onkyo Service Center.</li> </ul>
Hum, low frequency noise.	<ul style="list-style-type: none"> <li>● Poor or no input ground.</li> <li>● Poor or no phono motor ground.</li> </ul>	<ul style="list-style-type: none"> <li>● Check outer conductor of input plugs.</li> <li>● Check for proper ground connection.</li> </ul>
Howling when the volume is turned up.	<ul style="list-style-type: none"> <li>● Turntable and speakers are too close together.</li> </ul>	<ul style="list-style-type: none"> <li>● Move them farther apart.</li> </ul>
Rough or scratchy sound. High range is not clear.	<ul style="list-style-type: none"> <li>● Stylus of pick-up is worn.</li> <li>● Stylus tip is dirty.</li> <li>● Treble control too high.</li> </ul>	<ul style="list-style-type: none"> <li>● Replace.</li> <li>● Clean.</li> <li>● Turn treble control down.</li> </ul>
Buzzing noise on AM (particularly conspicuous at night or with weak stations).	<ul style="list-style-type: none"> <li>● Noise from electrical apparatus such as fluorescent lamp.</li> </ul>	<ul style="list-style-type: none"> <li>● Move AM loop antenna to different position.</li> <li>● Set up outdoor AM antenna.</li> </ul>
High pitched noise or buzzing noise on TV.	<ul style="list-style-type: none"> <li>● Noise from TV.</li> </ul>	<ul style="list-style-type: none"> <li>● Place the AM loop antenna as far as possible from the TV.</li> <li>● Move unit away from TV set.</li> </ul>
Crackling noise on AM and FM.	<ul style="list-style-type: none"> <li>● Noise caused by turning fluorescent lamp on and off.</li> <li>● Noise from automobile ignition.</li> </ul>	<ul style="list-style-type: none"> <li>● Move antenna as far as possible from the fluorescent lamp.</li> <li>● Install and FM outdoor antenna as far as possible from the road.</li> <li>● Change the position or direction of the outdoor antenna.</li> </ul>
FM Signal Strength Indicators and stereo indicator light but sound is distorted and separation is bad.	<ul style="list-style-type: none"> <li>● Station is too strong.</li> <li>● Multiple reflection of the radio waves because of tall buildings or mountains.</li> </ul>	<ul style="list-style-type: none"> <li>● Change to T-shaped antenna.</li> <li>● Use antenna which has better directivity and select a point where the distortion is least.</li> </ul>
FM Signal Strength Indicators and stereo indicator flicker and hiss is heard on FM.	<ul style="list-style-type: none"> <li>● Station is too weak.</li> <li>● Stereo FM broadcasts cover only about half the distance of an ordinary broadcast.</li> </ul>	<ul style="list-style-type: none"> <li>● Install an outdoor FM antenna.</li> <li>● Change the position or direction of the outdoor antenna.</li> </ul>
No station is recalled when a FM/AM preset button is pressed.	<ul style="list-style-type: none"> <li>● The power switch has not been turned on for a long time or the power cord has been unplugged for a long time.</li> </ul>	<ul style="list-style-type: none"> <li>● The memory contents are lost if the power switch is not turned on a few times each month. Store all stations again and remember to turn the power on a few times each month.</li> </ul>
Front panel controls function but remote control transmitter does not.	<ul style="list-style-type: none"> <li>● No batteries in remote control transmitter.</li> <li>● Batteries have worn out.</li> </ul>	<ul style="list-style-type: none"> <li>● Insert batteries.</li> <li>● Replace batteries.</li> </ul>

The tuning steps by which the tuned frequency changes on each band have been set at the factory to the proper value for the country where each unit is to be sold. If you use the unit in a country where a different tuning step is required or if the broadcast frequencies in your country change so that you can not tune in radio stations precisely, contact your authorized Onkyo Service Center.

## Specification

### AMPLIFIER SECTION

	TX-860	TX-840
Power Output:	70 watts per channel, min. RMS, at 8 ohms, both channels driven, from 20Hz to 20kHz, with no more than 0.04% THD.	60 watts per channel, min. RMS, at 8 ohms, both channels driven, from 20Hz to 20kHz, with no more than 0.08% THD.
Musical Power Output:	2 x 180 watts at 4 ohms, 1kHz (DIN) 2 x 120 watts at 8 ohms, 1kHz (DIN)	2 x 160 watts at 4 ohms, 1kHz (DIN) 2 x 100 watts at 8 ohms, 1kHz (DIN)
Continuous Power Output:	2 x 105 watts at 4 ohms, 1kHz (DIN) 2 x 77 watts at 8 ohms, 1kHz (DIN)	2 x 90 watts at 4 ohms, 1kHz (DIN) 2 x 70 watts at 8 ohms, 1kHz (DIN)
Total Harmonic Distortion:	0.04% at rated power 0.04% at 1 watt output	0.08% at rated power 0.08% at 1 watt output
IM Distortion:	0.04% at rated power 0.04% at 1 watt output	0.08% at rated power 0.08% at 1 watt output
Damping Factor:	40 at 8 ohms	40 at 8 ohms
Frequency Response:	20 - 30,000 Hz $\pm$ 1dB	20 - 30,000 Hz $\pm$ 1dB
RIAA Deviation:	20 - 20,000 Hz $\pm$ 0.8dB	20 - 20,000 Hz $\pm$ 0.8dB
Sensitivity and Impedance:	Phono: 2.5mV/50 kohms CD/Tape Play: 150mV/50 kohms Tape Rec: 150mV/3.5 kohms (phono) 120mV RMS at 1kHz, 0.04% THD	Phono: 2.5mV/50 kohms CD/Tape Play: 150mV/50 kohms Tape Rec: 150mV/3.5 kohms (phono) 120mV RMS at 1kHz, 0.08% THD
Phono Overload:	120mV RMS at 1kHz, 0.04% THD	120mV RMS at 1kHz, 0.08% THD
Signal-to-Noise Ratio:	Phono: 85dB (at 10mV input, A weighted) 75dB (IHF A-202) CD/Tape: 95dB (A weighted) 80dB (IHF A-202)	Phono: 85dB (at 10mV input, A weighted) 75dB (IHF A-202) CD/Tape: 95dB (A weighted) 80dB (IHF A-202)
Tone Controls:	Bass: $\pm$ 10dB at 100Hz Treble: $\pm$ 10dB at 10kHz	Bass: $\pm$ 10dB at 100Hz Treble: $\pm$ 10dB at 10kHz

### TUNER SECTION

#### FM:

Tuning Range:	87.5 - 108.0MHz (50kHz steps)	87.5 - 108.0MHz (50kHz steps)
Usable Sensitivity:	Mono: 11.2dBf, 1.0 $\mu$ V, 75 ohms 0.9 $\mu$ V (S/N 26dB, 40kHz Dev.) 75 ohms DIN Stereo: 18.0dBf, 2.2 $\mu$ V, 75 ohms 23 $\mu$ V (S/N 46dB, 40kHz Dev.) 75 ohms DIN	Mono: 12.8dBf, 1.2 $\mu$ V, 75 ohms 1.0 $\mu$ V (S/N 26dB, 40kHz Dev.) 75 ohms DIN Stereo: 18.0dBf, 2.2 $\mu$ V, 75 ohms 23 $\mu$ V (S/N 46dB, 40kHz Dev.) 75 ohms DIN
50dB Quieting Sensitivity:	Mono: 18.0dBf, 2.2 $\mu$ V, 75 ohms Stereo: 37.2dBf, 20 $\mu$ V, 75 ohms	Mono: 18.0dBf, 2.2 $\mu$ V, 75 ohms Stereo: 37.2dBf, 20 $\mu$ V, 75 ohms
Capture Ratio:	1.5dB	1.5dB
Image Rejection Ratio:	85dB	85dB
IF Rejection Ratio:	90dB	90dB
Signal-to-Noise Ratio:	Mono: 73dB Stereo: 67dB	Mono: 73dB Stereo: 67dB
Selectivity	50dB DIN ( $\pm$ 300kHz, 40kHz dev.)	50dB DIN ( $\pm$ 300kHz, 40kHz dev.)
AM Suppression Ratio:	50dB	50dB
Harmonic Distortion:	Mono: 0.15% Stereo: 0.25%	Mono: 0.15% Stereo: 0.30%
Frequency Response:	30 - 15,000Hz $\pm$ 1.5dB	30 - 15,000Hz $\pm$ 1.5dB
Stereo Separation:	45dB at 1kHz 30dB at 100 - 10,000Hz	45dB at 1kHz 30dB at 100 - 10,000Hz

#### AM:

Tuning Range:	522 - 1611kHz (9kHz steps)	522 - 1611kHz (9kHz steps)
Usable Sensitivity:	30 $\mu$ V	30 $\mu$ V
Image Rejection Ratio:	40dB	40dB
IF Rejection Ratio:	40dB	40dB
Signal-to-Noise Ratio:	40dB	40dB
Harmonic Distortion:	0.7%	0.7%

### GENERAL

Power Supply:	European models (except U.K.): AC220V, 50Hz U.K. & Australian models: AC 240V, 50Hz Wordwide models: 120 and 220V switchable, 50/60Hz	European models (except U.K.): AC220V, 50Hz U.K. & Australian models: AC 240V, 50Hz Wordwide models: 120 and 220V switchable, 50/60Hz
Dimensions (W x H x D):	435 x 130 x 351 mm 17-1/8" x 5-1/8" x 13-13/16"	435 x 130 x 351 mm 17-1/8" x 5-1/8" x 13-13/16"
Weight:	8.8 kg., 19.4 lbs.	8.2 kg., 18.1 lbs.
Supplied accessories:	<ul style="list-style-type: none"> <li>Remote control transmitter RC-149S</li> <li>UM-4/R03/AAA battery x 2</li> <li>AM loop antenna</li> <li>FM T-type antenna</li> <li>RI remote control cable</li> </ul>	

Specifications and features are subject to change without notice.